

United States Senate

August 5, 2010

The Honorable Mary L. Schapiro
Chairman
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090

Re: Ongoing Market Structure Review

Dear Chairman Schapiro:

I am writing to you once again out of concern for the credibility of our equity markets. You have said on several occasions that the markets exist to serve two primary functions:

- (1) capital formation, so companies can raise capital to invest, create jobs and grow; and
- (2) attracting and serving long-term investors to help facilitate the capital formation process.

I wholeheartedly endorse this philosophy. The Securities and Exchange Commission's review should assess every market structure and practice through this lens and determine, first and foremost, the degree to which each feature serves or detracts from those functions. Despite the enormous and important workload Congress has placed on the Commission by enacting the Dodd-Frank Wall Street Reform and Consumer Protection Act, I hope you agree with me that it is critical for the Commission to continue its work in this area expeditiously and propose further needed changes.

The May 6 "flash crash," during which liquidity dried up and the stock markets failed their essential price discovery function for a harrowing 20 minutes, exposed serious flaws in our market structure. In its aftermath, the commissioners and staff of the SEC and Commodity Futures Trading Commission (CFTC) worked heroically to try to understand the unusual trading activity of that day and draw needed lessons. While putting in place stock-specific circuit breakers was a useful first step, much work remains if we are to restore investor confidence and ensure our markets are strong and credible.

In particular, several areas of current market structure lead me to be concerned about the performance of the markets for investors and companies seeking to raise capital. The proliferation of exchanges and other market centers that has increased fragmentation, the substantial rise in volume executed internally by broker-dealers or in dark pools, excessive messaging traffic, the dissemination of proprietary market data catering to high frequency traders, and order-routing inducements all may be combining in ways that cast doubts on the

depth of liquidity, stability, transparency and fairness of our equity markets. These areas deserve further review and possible rulemaking by the Commission. Repairing investor confidence and fixing a broken market structure cannot take a back seat to the Commission's other statutorily imposed responsibilities.

For example, while speed and efficiency can produce certain benefits, they have also created a micro-arms race that is being waged in our public marketplace by high frequency traders and others. At least partially as a result, much of the deepest and most valuable order flow has retreated from the "lit" public markets to dark trading venues. Accordingly, some market participants argue that high frequency traders have certain advantages and, therefore, should be subjected to trading obligations and other regulations. High frequency traders, on the other hand, complain that the best liquidity to trade against (retail and large orders) is routed to dark markets. With that being the case, they question why they should be obligated to make markets on public venues, where they are trading against dark pool "exhaust" and competing with other sophisticated traders, leaving them with razor-thin per-trade profits.

The answer, in my view, lies in both directions: we must improve the quality of the public marketplace by harmonizing and reducing the fragmentation in ways that diminish those parts of the high frequency "arms race" that have no social utility. At the same time, however, we must reduce the amount of order flow executed internally by broker-dealers and in dark pools.

It may seem counterintuitive, but the Commission should even examine whether regulation should aim not to facilitate narrow spreads with little size or depth of orders, but instead promote deep order books – and if necessary – wider markets with large protected quote size. Wider spreads with a large protected quote size on both sides may facilitate certainty of execution with predictable transparent costs. Narrow fluctuating spreads, on the other hand, with small protected size and thin markets, can mean just the opposite – and actual trading costs can be high, hidden and uncertain. Deep stable markets will bring back confidence, facilitate the capital formation function of the markets and diminish the current dependence on the dark pool concept. At a minimum, the Commission must carefully scrutinize and empirically challenge the mantra that investors are best served by narrow spreads. In reality, narrow spreads of small order size may be an illusion that masks a very "thin crust" of liquidity (which leave markets vulnerable to another flash crash when markets fail their price discovery function only next time within the bounds of circuit breakers) and difficult-to-measure price impacts (that might be harmful to average investors and which diminish investor confidence), both of which the Commission must examine and possibly address.

As I wrote to you on August 21, 2009, the markets have changed dramatically in recent years. The Commission urgently needs to undertake (and complete) a comprehensive review of how these changes, both individually and in the aggregate, affect long-term investors. In the aftermath of the flash crash, this is an historic moment for the Commission, a moment when it must fulfill its obligation as steward for those investors who lack the clout of Wall Street's largest financial players. I have proposed some problems and possible solutions that the

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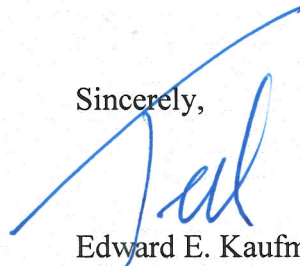
Commission and its staff should consider; admittedly, there are no silver bullets or easy answers for complex markets.

Yet we can, and must, expect answers. The direction the Commission takes in its bid to fulfill its mission will say much about the type of country in which we live. As difficult as it might be, regulators must stand apart from the industries they regulate, listening and understanding industry's point of view, but doing so at arm's length, and with a clear conviction that on balance our capital markets exist for the greater good of all Americans. This is a test of whether the Commission is just a "regulator by consensus," which only moves forward when it finds solutions favored by large constituencies on Wall Street, or if it indeed exists to serve a broader mission, and therefore will act decisively to ensure the markets perform their two primary functions of facilitating capital formation and serving the interests of long-term investors.

A consensus regulator may tinker here and there on the margins, adopt patches when the markets spring a leak, and reach for low-hanging fruit when Wall Street itself reaches a consensus about permissible changes. In these times, however, the Commission must be bold and move forward.

Please see the attached document where I have laid out some themes that elaborate on my views about the ongoing market structure review.

Sincerely,



Edward E. Kaufman
United States Senator

cc: The Honorable Kathleen L. Casey
The Honorable Elisse B. Walter
The Honorable Luis A. Aguilar
The Honorable Troy A. Paredes

ATTACHMENT

POSSIBLE MARKET STRUCTURE SOLUTIONS

1. Finalize and quickly implement pending rule proposals

Since last September, the Commission has agreed unanimously to issue rule proposals concerning flash orders, dark pools, “naked” access, “large trader” tagging and a consolidated audit trail. For the most part, however, the Commission has given little indication of the timetable for finalizing these proposals. The Commission will soon have had ample time to consider the comments of market participants, assess the expected consequences of these rule proposals, and design plans for their implementation.

Be it questionable practices like flash orders, the potential for systemic risk created by unfiltered access or a lack of transparency into current high frequency and algorithmic trading strategies, an urgent need clearly exists for these proposed rules to be altered, where appropriate, and finalized.

When the SEC has provided a timetable for implementation, particularly in the consolidated audit trail rule proposal, I have been disappointed. A potential three-year time period from proposal to full implementation is extremely troubling, particularly given the Commission’s admission that the disparate audit trails currently in place across various market centers do not allow for the timely, comprehensive or efficient analysis of market data. If the Commission has the will, there is indeed a way to do this faster.

2. Bring high frequency traders and other systematic proprietary traders into an effective regulatory regime

Over the last five years, high frequency trading volume has exploded and is now responsible for as much as 70 percent of average daily trading volume. But while such traders have emerged as the dominant source of liquidity and largely taken the place of traditional specialists and market-makers, they have not been subject to many of the same regulations. This regulatory gap should be filled.

For starters, the SEC must obtain a more granular understanding of high frequency trading strategies and determine the extent to which their arbitrage and liquidity provision functions outweigh the costs they might impose on individual investors and the overall marketplace. While high frequency trading has undoubtedly reduced the *explicit* costs of trading in the form of narrower spreads and lower commission fees, the *implicit* costs of trading have not been subject to a rigorous analysis. For example, at the SEC Roundtable on June 2, Kevin Cronin of Invesco noted that little data exists on order-routing history and asserted “there are dimensions of cost that today we do not have the ability to really understand.”

The SEC must address this data and understanding deficiency. The first step is to finalize the “large trader” tagging and consolidated audit trail proposals and expedite the implementation process as much as possible. Then the Commission should improve its own analytical capabilities. Finally, the Commission should begin releasing segments of the data in masked form and on a time-delayed basis to academics and independent experts for further analysis. Without an empirical understanding of the price impacts of high frequency trading and systematic strategies on long-term investors, the Commission cannot hope to construct an effective regulatory framework.

Second, the Commission and/or the Financial Industry Regulatory Authority (FINRA) must end the current “wild west” environment of “anything goes” in the microsecond trading world and replace it with a sense that trading activity is being actively monitored and policed for illegal trading behavior. In addition to collecting data and analyzing it for manipulative trading patterns, the SEC or FINRA should issue informal guidance on what trading patterns and practices – if regulators can prove the requisite element of “intent” – constitute unlawful manipulation.

Third, the Commission should require all high frequency traders who exceed a certain volume threshold to register with the SEC. Those traders should then be subject to automatic risk compliance and anti-gaming checks. For example, the CEOs of applicable high frequency trading firms could be required to certify, under oath, that their algorithms do not manipulate market prices. In putting new risk and compliance requirements in place, the Commission should be mindful that, although similar in many respects, large high frequency firms and smaller trading shops have different capabilities and implement different strategies that bring different benefits and risks to the marketplace. Rules should be crafted so as not to favor one group over the other.

Fourth, the SEC must assess the specific strategies employed by high frequency and statistical arbitrage traders to determine if they pose systemic risks. Because arbitrage opportunities are generally small and fleeting, traders tend to converge on “winning” strategies. This strategy convergence – driven by natural selection and crowding – may leave the marketplace vulnerable to sudden price swings. Accordingly, regulators must develop ways to identify incidences of short-term strategy convergence and determine whether this synergy generates momentum and volatility in ways that might disadvantage investors or destabilize the marketplace.

Fifth, the SEC should impose some liquidity provision obligations on high frequency traders. Enhanced requirements should be crafted to encourage high frequency traders to post two-sided markets and supply investors with a consistent source of deep liquidity. In addition to affirmative liquidity provision obligations, the Commission should consider instituting negative obligations as well. High frequency traders act as liquidity *takers* in addition to liquidity *makers*. Particularly during times of market stress or uncertainty, high frequency traders may seek to swallow the available posted liquidity through the use of Intermarket Sweep Orders (ISOs) and other trading tools. To the extent that ISOs can exacerbate volatility and liquidity dislocation – as might have occurred on May 6 – their use should clearly be reviewed and possibly restricted. While

no degree of affirmative or negative obligations will totally prevent another flash crash – as traders will never be willing to stand in front a freight train of sell orders 100 percent of the time – such rules could restore a much-needed sense of stability to the marketplace and serve the trading interests of long-term investors.

3. Allocate costs of the system and costs of the new consolidated audit trail on a per message basis rather than traded volume basis

Excessive message traffic and cancellation rates can “choke” the system and tax the industry as a whole by raising the costs of processing market data, slowing down trading by overloading exchange systems (which some have suggested occurred on May 6), and creating uncertainty for investors seeking to gauge trading interest and participate in the markets. Cancellations can also be used as feints to “spoof” algorithms and present challenges for regulators seeking to monitor and reconstruct trading activity in a timely and efficient manner. As a recent paper, “Drowning in Data,” put forth by Doug Clark and others at BMO Capital Markets (http://qes.bmocm.com/papers/13_BMO_DrowningInData.pdf), notes: “The marketplace currently offers no incentive for programmers to design their algorithms efficiently. While some firms are able to run complex HFT strategies sending roughly 10 orders for every fill, others running similar strategies are currently sending hundreds, even thousands, of orders per fill. These inefficient strategies hog bandwidth and stress marketplace systems.”

Some market participants suggest market centers should be allowed to set their own policies for dealing with message traffic and bandwidth usage. They believe, apparently, that competition will lead to sound practices. This approach fails to recognize that exchanges are conflicted due to their dependence on high frequency trading volume for market share and market data revenue. Market centers, thus, have strong incentives to adopt policies that will attract high frequency order flow and may be unwilling to risk driving some of that volume to competing trade venues.

Accordingly, the Commission should require trading venues to allocate system costs at least partially based on message traffic rather than traded volume. A similar framework should be applied to pay for the consolidated audit trail and other technology and surveillance costs that regulatory agencies incur.

Such a proposal is not a direct “tax” on cancellations. Rather, a system that allocates cost proportionally to message traffic would fall especially on those who abuse cancellations and order modifications (at little or no cost to themselves) in today’s marketplace. At the same time, such a system would offer high frequency trading firms an incentive to become more efficient and would reduce message traffic, system stress and marketplace noise, which would benefit market participants and regulators alike. Forcing those who produce message traffic – and profit from the strategies that may require it – to pay a portion of the costs that traffic imposes on the rest of the market is a common sense solution that would alter the incentives for high frequency traders who may be flooding the marketplace with orders, order modifications and cancellations.

4. Standardize the dissemination of market data

The SEC must address the current system by which market data is disseminated. As trading became faster and increasingly fragmented over the last few years, the consolidated tape or public quote (SIP) became antiquated and now lags behind direct proprietary market data feeds. As a result, high frequency trading firms and other market participants began to co-locate their computer servers at every exchange, subscribe to proprietary data feeds and attempt to recreate order books through programmed algorithms in order to capitalize on latency arbitrage opportunities.

The benefits to high frequency trading firms – and potential price impacts to long-term investors – as a result of this superior speed and information capability has not been thoroughly measured. There is good reason to believe it exists, however. In a paper released November 3, 2009, Jeffries Company estimated that co-location and direct data feeds afford traders a 100-200 millisecond advantage over other investors. The latency arbitrage opportunities such a system creates should be subject to rigorous regulatory scrutiny.

At the same time, market participants have expressed concern that exchanges are including information in their proprietary data feeds that might enable high frequency traders to anticipate large orders in the marketplace and trade ahead of them.

At a minimum, the SEC must modernize the SIP, standardize the types of information provided by exchanges, and study the inherent latencies involved with disseminating market data in the fragmented marketplace. It may be that market data should be released on a time-coordinated basis.

5. Raise the bar for becoming a market center and harmonize rules across all market centers

The SEC must determine whether we have gone from too few market centers – a duopoly of the New York Stock Exchange and Nasdaq – to too many. Today, there are more than 50 trading venues in addition to over two hundred broker-dealers who can execute order flow internally. While competition has benefited investors in some respects, the dispersion of order flow across many market centers has had unforeseen consequences and has caused regulatory cracks to develop.

At this stage, the proliferation of trading venues has no end in sight. Public market centers keep filing applications for new platforms. The exchanges seem to have a “market segmentation” approach that may be occurring simply because every time a new venue opens, high frequency trading firms are motivated to lay dry fiber to and from that platform, co-locate their servers, and begin placing orders simultaneously at that and other exchanges in a race to receive price-time priority under the rules of Regulation NMS. This fragmentation, then, has only exacerbated the current micro arms race that is taking place in the lit markets. And as trading continues to become faster and more

dispersed, it is that much more difficult for regulators to perform their vital oversight and surveillance functions.

Accordingly, the Commission should consider strengthening the regulatory requirements for becoming an Alternative Trading System (ATS) or starting a new trading platform for existing market centers. Indeed, rule changes leading to a reduction in the number of market centers may be warranted. At the same time, the SEC should harmonize rules across all market centers to ensure exchanges and ATS's are competing on a level playing field that serves the interests of all investors.

6. Rethink the current regulatory framework to emphasize deep markets

Under Reg NMS, only quotations at the National Best Bid and Offer (NBBO) are protected from being traded-through. Consequently, high frequency traders compete to obtain price-time priority and ensure their bids and offers will be at the top of the order book simultaneously at almost every exchange and public market center. At the same time, high frequency traders have little incentive to post orders that sit on order books and add depth to the marketplace. Instead, in order to minimize risk and adverse selection, they often elect to post bids and offers for few shares (e.g. 100 shares) and then rapidly cancel those that are not first in line or likely to be filled immediately.

Accordingly, the Commission should rethink which quotes should be protected and how. Clearly, rules should be comprised according to what kind of marketplace regulators believe best fosters capital formation and investor participation. If the current regulatory framework indeed favors speed over size and narrow spreads over deep markets, regulators must determine whether these characteristics are consistent with a well-functioning marketplace for investors. While some regulations might widen spreads and raise the explicit costs of trading, those outcomes alone should not disqualify such rules from being considered. Indeed, policies designed to protect large quote sizes on the bid and offer and to mandate or incentivize significant resting liquidity be provided at multiple price points would result in wider spreads, but might also offer greater certainty of execution and make trading costs more predictable and transparent for investors. Simply put, it may be better for investors to pay the spread they can see than the price impacts they cannot see or effectively measure.

7. Examine the incentives that distort participation in the market

The SEC should also address the incentives that drive participation in the markets by liquidity providers, exchanges, brokers and others. High frequency traders acting as de facto market-makers, for example, generate profits by capturing spreads and earning liquidity rebates under the current maker-taker pricing models used by many market centers to attract order flow. Such pricing schemes present a host of problems.

First, maker-taker pricing distorts bid-ask spreads. Exchanges pay rebates to those who "make" liquidity and charge a fee to those who "take" it. These fees, while limited to three-tenths of a penny per share, are significant. While spreads are narrow in

active stocks, they might be, to a degree, artificially so because rebates and fees may be factored into quoted prices. Thus, “true” spreads can actually be as much as three-tenths of a penny lower than the best bid and three-tenths of a penny higher than the best offer. In symbols with a spread of a penny, a six-tenths of a penny difference between the quoted spread and actual spread is significant

Second, maker-taker pricing creates inherent conflicts of interests. Because they are not required to pass along rebates to their customers, brokers might be inclined to direct order flow to the trading venue offering the lowest transaction costs, but not necessarily the best order execution.

Third, maker-taker pricing schemes create inefficiencies by encouraging the undue intermediation of customer orders. In active stocks where spreads are thin, the fastest trading firms are able to rapidly buy and then sell stocks at the same price (or vice versa). By employing these so-called “rebate capture” strategies, a firm can earn two rebates without necessarily supplying liquidity. Rather, the firm might merely be standing in between natural buyers and sellers who would have traded with each other had the high frequency firm not intermediated. Such strategies are of little value to the marketplace and should be eliminated where possible.

Payment for order flow should also be subject to further regulatory scrutiny. Because their orders are less likely to reflect recent trends in the market (e.g. price movements caused by volatility or a large trader in the market), particularly when those trends can occur in milliseconds and microseconds, retail-based orders are extremely valuable to trade against. In order to attract retail orders, internalizing dealers often pay retail brokers to direct customer orders to their trading venues. As with liquidity rebates, such payments pose inherent conflicts of interest for brokers charged with ensuring their customers’ orders receive “best execution.” Given that best execution obligations are poorly-defined and meaningful execution quality data is relatively inaccessible, unreadable or non-existent, it is all the more important for regulators to root out conflicts of interest at the broker level.

While rebates undoubtedly promote the public display of orders and payments for order flow help lower commission fees, such order-routing inducements might have more to say about where orders are executed than any precise notion of “best execution,” which has become a myth in a trading environment that takes place in microseconds (please see my memo of November 20, 2009, <http://kaufman.senate.gov/imo/media/doc/Schapiro%20Mary%2011%2020%20091.pdf>). At the least, brokers should be required to provide detailed descriptions of their order-routing procedures, including information on payments and rebates received.

8. Examine whether too much order flow is being shielded from the lit markets by dark venues

Improving the quality of the lit marketplace should be a top priority at the Commission. Our public markets should be the strongest and most stable trading venues

in the world. That is not possible, however, if they simply house the “exhaust” order flow that is passed over by dark pools and internalization venues.

Accordingly, I was pleased to hear you say last month at the International Organization of Securities Commissions (IOSCO) conference in Montreal that the SEC is “looking at whether and to what extent pre-trade price discovery is impaired by the diversion of desirable, marketable order flow from public markets to dark pools.”

The fact that virtually all marketable retail order flow is executed internally by broker-dealers and a significant portion of institutional order flow is routed to dark pools – as the Concept Release notes – clearly merits close review. Specifically, the Commission must determine whether dark venues are attracting so much liquidity that the public markets are left with only a “thin crust” of buy orders that can be eaten through in periods of market uncertainty, causing a cascading effect of sell orders (or vice versa).

In addition, as noted above, the SEC should assess whether investors are receiving fair executions from internalization venues. The slowness of the SIP may provide internalizing dealers with opportunities to provide insignificant “price improvement” against a stale quote. This essentially amounts to a license to take unfair spreads, particularly in the current microsecond trading environment.

At a minimum, the Commission must make the NBBO a more precise and better-synchronized benchmark and require market centers to report transactions to the millisecond, if not microsecond. The SEC should also consider requiring a meaningful percentage of the spread captured by brokers who direct their own retail clients’ orders to their proprietary system (or brokers who buy another firms’ clients orders to direct to their own proprietary trading system) be paid to the client.

At the same time, the SEC must examine whether to continue allowing internalizing dealers to offer “price improvement” to customer orders in sub-penny increments. Under an exception in Rule 612 of Reg NMS, the SEC currently allows broker-dealers to execute orders in sub-penny increments as long as the execution improves upon the prevailing NBBO. But the benefit to customers of saving as little as \$.0001 per share might be outweighed by the negative effects of sub-penny pricing on overall market quality. Specifically, sub-penny pricing can deprive those who place publicly displayed limit orders from receiving quick executions at favorable prices. To the extent that investors decide not to place limit orders as a result, the price discovery process is undermined. Consequently, as others have suggested, the Commission should strongly consider establishing a minimum price variation of \$.01 to protect publicly displayed orders and overall market quality.

9. Consider lifting the ban on locked markets

Some commentators have suggested that the SEC should lift the ban on locked markets. Locked markets occur when a trader attempts to place a bid on one exchange at the same price as an offer on a different exchange (or vice versa). But in the current

high-speed, highly-fragmented marketplace, banning locked markets might have several unintended consequences, including slowing down trading and creating uncertainty regarding market prices.

Eliminating the ban on locked markets, however, would directly or indirectly address a number of the issues I have outlined above. First, such a move would reduce market fragmentation. If bids and offers at the same price but different venues are not forced to interact, volume on less-desirable exchanges will naturally dissipate.

Second, allowing locked markets will reduce the importance of the speed differential between the direct data feeds provided by exchanges and the consolidated quotation stream. For example, when a bid is lifted on one venue, an offer at the same price placed milliseconds later might not be allowed to post because the SIP is slow and might still be displaying the stale bid. A high frequency trader subscribing to a direct data feed, however, can see the SIP quote is stale and capitalize on arbitrage opportunities while the offer is waiting to post. Accordingly, the current prohibition on locked markets can slow down trading in ways that may disadvantage long-term investors.

Third, lifting the ban on locked markets could reduce the prevalence of trading in dark pools and internalization venues. In a locked market, it is impossible to provide price improvement on the NBBO, even by a fraction of a penny, because the spread is zero. This would render one argument in favor of internalization – that it reduces transaction costs for investors – moot whenever a locked market occurs, which could be often in liquid, highly-active symbols.